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extending vertically away from said terminal body portions and said terminal retention stubs extending horizontally away from said terminal body portions.

Add the following new claim 19:

19. (Newly Added) A receptacle connector for effecting an electrical connection between an integrated circuit package having a plurality of contacts disposed thereon, and a printed circuit board having a plurality of contact pads formed thereon, the receptacle connector comprising:

5 an insulative connector housing for interposing between the integrated circuit package and the printed circuit board in use, the connector housing including a plurality of cavities formed therein, each of the cavities opening to opposite surfaces of said connector housing ; and,

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10 a plurality of conductive terminals embedded in said connector housing, each of the terminals being disposed in a single one of said cavities, the terminals including body portions extending across connector housing cavities, the terminal body portions having a plurality of edges, said terminals including pairs of terminal retention members disposed along two opposing edges of said body portions, the terminal retention members extending into said connector housing to thereby hold said terminals in place, at least one of said terminal retention member including a retention stub formed by bending said terminal upon itself, said terminals further including contact arms that extend away from said terminal body portions and project exterior of said connector housing for contacting said contacts or contact pads, each of said terminals including a spherical contact applied to said terminal and disposed on a side thereof opposite said contact arm.

REMARKS

This amendment is in response to the Office Action mailed July 26, 2002 wherein:

(1) the Examiner commented on the specification; (2) claims 3, 4, 9 and 14 were rejected under 35 U.S.C. §112, second paragraph, as indefinite; (3) claims 1, 2, 5, 11-13, 15 and 17-18 were rejected under 35 U.S.C. §102(e) as anticipated by U.S. Patent No. 6,409,521

(RATHBURN '521); and, (4) claims 6-8, 10 and 16 were indicated as containing allowable subject as were claims 3-4, 9 and 14.

By the present amendment, applicants have: (1) cancelled claims 14, without prejudice; (2) amended claims to cure the indefiniteness issue raised and required by the Examiner; (3) amended claims 3, 4, 9 and 12; (4) added new claim 19. Entry of this amendment and reconsideration of this application is respectfully requested.

In the subject Office Action, the Examiner indicated that claims 6-8, 10 and 16 contained allowable subject matter. New claim 19 is a combination of originally presented claims 1 and 6 and as such is therefore allowable. The allowance of this claim is respectfully requested.

The Examiner also, in the subject Office action, set forth reasons for allowance of claims 3-10, 14 and 16. Those reason cited the use of spherical contacts and thus the reasons imply that only spherical contacts render the claims allowable over the prior art. Yet, many of the claims indicated by the Examiner as containing allowable subject matter do not specifically contain any recitation either express, implied or inherent of "spherical contacts". See, e.g., claims 3, 4, 8, 9 and 14. Correction of this matter is respectfully requested.

Applicants have amended independent claim 12 to include the subject matter of dependent claim 14, which has been cancelled. As amended, the claim calls for the body portions of the terminals to extend horizontally in their receiving cavities and that their retention arms extend vertically away from the body portions and the retention stubs extend horizontally away from the body portions. Such a structure is not shown or suggested by the prior art. Accordingly, claim 12 and claim 13 and 15-18, that depend therefrom, are allowable and the withdrawal of the rejections thereof and the allowance thereof are respectfully requested.

Turning now to the rejection of indefiniteness rejections of claims 3, 4, 9 and 14, those claims have been amended except for claim 14, which has been incorporated into claim 12. As for claims 3, 4 and 9, it is noted that the Examiner's rejection of them is based upon a lack of antecedent basis for "retention arms". Retention arms were specifically mentioned in claim 2, which claims 3, 4 and 9 in one way or the other depend from. Hence, it is believed that the claims are indeed definite and have full antecedent basis. Accordingly, the

withdrawal of the rejections thereof and the allowance of these claims is respectfully requested.

Lastly, the anticipation rejection of claims 1, 2, 5, and 11 shall be addressed. The Examiner has asserted that these claims are “anticipated” under Section 102. He is incorrect and applicants respectfully traverse the rejections.

It is fundamental practice that for a reference to “anticipate” a patent claim, each and every feature of the claim must be present, either expressly or inherently in the prior art reference. That is not the case here, for there are many claimed features that are simply not present in RATHBURN ‘521. The Examiner has either failed to appreciate the language of independent claim 1, or misunderstood and misapplied RATHBURN ‘521.

RATHBURN ‘521 to one skilled in the art is a connector used for the same connection application as applicants’ claimed connectors are. However, RATHBURN has a different structure and clearly teaches away from the connector structure claimed by applicants. Using the Examiners Attachment that comprises FIG. 38 of RATHBURN ‘521, it can be seen that RATHBURN ‘521 has a housing H, that has a horizontal extent 762, 762' (easily distinguished by slanted lines are angled to the bottom left of the Figure). This horizontal extent of the connector housing has a plurality of holes, or cavities, formed therein. These cavities are not labeled in FIG. 38, but are shown as being filed with a “resilient, dielectric encapsulating material” (Column 9/lines 1-3). All of the embodiments of RATHBURN ‘521 are explained in terms of a separate housing with an opening that is filled with an encapsulating material which serves to attach the terminals of RATHBURN ‘521 to its housing. None of the contacts or terminals are attached to the housing and therefore cannot be “embedded” in the housing or any of their portions “extend” into the housing. The encapsulant is not the connector housing, but is a separate material in the form of a plug that is inserted into an opening(s) in the connector housing.

Indeed, the housing and the encapsulant are described in the body of RATHBURN ‘521 as being formed from entirely different structural materials, one having body and the other being resilient. (Column 10, lines 8-15 and lines 33-39.). Hence, it is impossible, even under a tortured interpretation that the Examiner seeks to apply to, to state with any measure of credibility that the terminals in RATHBURN ‘591 are “embedded” in the connector housing or have retention members that extend into the connector housing. Anyone can

-clearly see that the terminals are encapsulated within a resilient or elastomeric compound in the form of a plug that is inserted into cavities formed in the connector housing. Such a separate plug cannot be "embedded" or "extend into" the connector housing as claimed by applicants in independent claim 1. Moreover the terminals in RATHBURN '521 are stamped, or blanked, and are not in any manner folded upon themselves to define any sort of retention stub as claimed in independent claim 1. Indeed, the drawings, and specifically FIG. 38 expressly relied upon by the Examiner illustrate that the terminals of RATHBURN '521 are maintained in isolation from contact with the connector housing and as such, they cannot have any sort of retention feature that extends into the connector housing as claimed.

It is clear to one skilled in the art that none of the prior art cited by the Examiner discloses all of the claimed elements of independent claim 1, and thus there can be no anticipation rejection, whether under Paragraph (e) or (b) of section 102. RATHBURN '521 and the other cited art fail to disclose or show the following features:

- (1) a plurality of conductive terminals "embedded in said connector housing";
- (2) terminal body portions extending across said connector housing cavities;
- (3) the terminal retention members extending into said connector housing to hold said terminals in place; and
- (4) a retention stub formed by bending said terminal upon itself..

RATHBURN '591 does not show any terminal that are embedded in a connector housing, nor terminals with body portions that "extend across" the cavities in which they are received, nor does RATHBURN '591 show any terminal retention members "extending into" the connector housing, or a retention member formed by folded the terminal upon itself.

The same holds true for the additional are cited by the Examiner. U.S. Patent No. 5,427,535 (SINCLAIR) shows terminals 40 encapsulated in an elastomeric plug 42 that is inserted into a cavity of a connector base in which the terminal is isolated by the elastomer from contact with the connector base;

U.S. Patent No. 6,106,305 (KOZEL et al.) shows a connector having contacts 12 that are encapsulated within an elastomeric body 10. No cavities are shown, nor are terminal body portion that extend across such cavities.

U.S. Patent No. 4,199,209 (CHERIAN et al.) shows a connector in which terminals 18 are laminated between two sheets of an elastomer 20 to form vertical wafers that are stacked

horizontally. No cavities are present in this connector and the terminals do not have any body portion that extend across such cavities or any retention portions that extend into the connector housing. The vertical nature of this connector prevents such structure from being used.

U.S. Patent No. 4,341,433 (CHERIAN et al.) discloses a connector .in which terminals 18 are inserted into slots 52. The slots are not cavities as claimed in the present application and the terminals have no body portions extending into the connector housing.

U.S. Patent No. 5,938,451 (RATHBURN '451) is much the same as RATHBURN '591 in that it has conductive terminals 42 that are retained in a housing by an "encapsulating materials 46". (Column 4, lines 61-64).

U.S. Patent No. 6,178,629 (RATHBURN '629) shows the same "encapsulated" terminals as the other RATHBURN references. The alternate embodiment of contacts in this reference shows a terminal 200 rotatably mounted to a separate post 220, not embedded terminals.

It should now be clear that the Examiner has misread both the pending claims and the prior art and that the prior art, whether taken solely as in the Office Action or combined, does not anticipate or render obvious the pending claims. Withdrawal of all the rejections and the allowance of the claims is respectfully requested.

Respectfully submitted,

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EXHIBIT to Amendment of October 28, 2002 containing marked-up set of amended claims illustrating additions and deletions.

Molex Case A1-180US
Inventors: Atsuhito Noda et al.
Serial No. 10/060,736
Filed: January 30, 2002
For: LOW-PROFILE
RECEPTACLE CONNECTOR

Examiner Edwin Leon
Group Art Unit 2833

3. (Amended) The receptacle connector of claim 2, wherein said terminal body [portion extends] portions of said terminals extend in a horizontal plane within said connector housing cavity and said terminal retention [arm extends] arms extend in a vertical plane away from said terminal body. [portion] portions and said retention [stub extends] stubs extend away from said terminal body [portion] portions in a horizontal plane.
4. (Amended) The receptacle connector of claim 3, wherein said terminal retention [arm] arms and stubs are embedded in said connector housing.
9. (Amended) The receptacle connector according to claim 3, wherein [each] said terminal retention [arm and retention] arms and stubs are disposed perpendicular to each other.
12. (Amended) A connector for connecting together an integrated circuit package having a plurality of contacts disposed thereon, and a printed circuit board having a plurality of contact pads formed thereon, the connector comprising:
 - 5 an insulative housing having a plurality of sidewalls that cooperatively define a receptacle of said connector for receiving the integrated circuit package, the connector housing including a plurality of terminal-receiving cavities formed therein and arranged within the receptacle, each of the terminal-receiving cavities opening to opposite surfaces of said housing ; and,
 - 10 a plurality of conductive terminals disposed in said terminal-receiving cavities, a single one of the terminals being disposed in a single cavity, each of the terminals including:
 - 15 a terminal body portion extending horizontally within its associated terminal-receiving cavity, the terminal body portion having a plurality of edges, two terminal retention members disposed along two opposing edges of said body portion and a contact arm that extend away from said terminal body portion and projecting exterior of said connector housing, the two terminal retention members being embedded in said housing to thereby hold said terminal in place within said housing and in said terminal-receiving cavity, at least one of said terminal retention members including a retention stub formed by bending said terminal upon itself at one of said two opposing edges of terminal body portion, each of said terminal body portions extending horizontally within said terminal-receiving cavities, said terminal retention arms extending vertically away from said terminal body portions and said terminal retention stubs extending horizontally away from said terminal body portions.